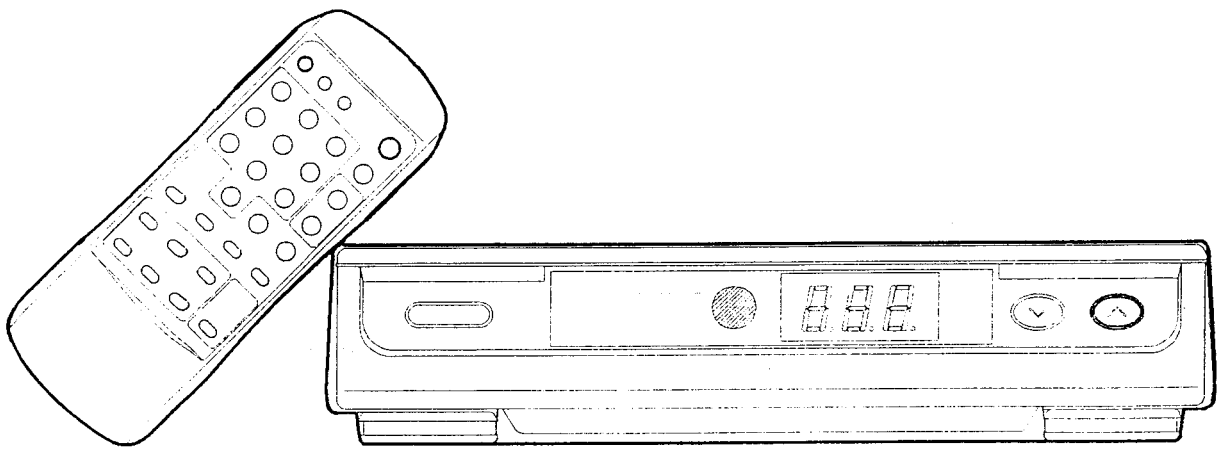
Service Manual

tele-tech

SR 700



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1. Technical Data

Power Supply: 220V(min.) ~ 240V(max), 50Hz/60Hz

Programmes: 550 channels

Video System: PAL

Tuner demodulator:

Input Frequency	: 900 MHz ~ 2150 MHz
IF bandwidth	: 27 MHz @ 3dB
IF	: 479.5 MHz

Audio Section:

8 Audio Channels	: All tunable by user
Frequency Range	: 5.00 MHz ~ 10.00 MHz
Audio Bandwidth	: 150 KHz
De-emphasis Stereo	: 50us with expansion & noise reduction
Mono	: 50us
Stereo Selection	: R / L / R-L selectable for all programmes
Mono Selection	: 50us for all programmes
Frequency Response	: 100 Hz ~ 15 KHz
Harmonic Distortion	: 2% maximum

LNB Interface

Current Capability	: 450mA MAX
Voltage	: 13 ~ 19V controllable
H	: 17 ~ 19V 100 — 300mA
V	: 12 ~ 14V 100 — 300mA
Marconi-type LNB	: 13 ~ 19V switching. (LNB 1, 2)

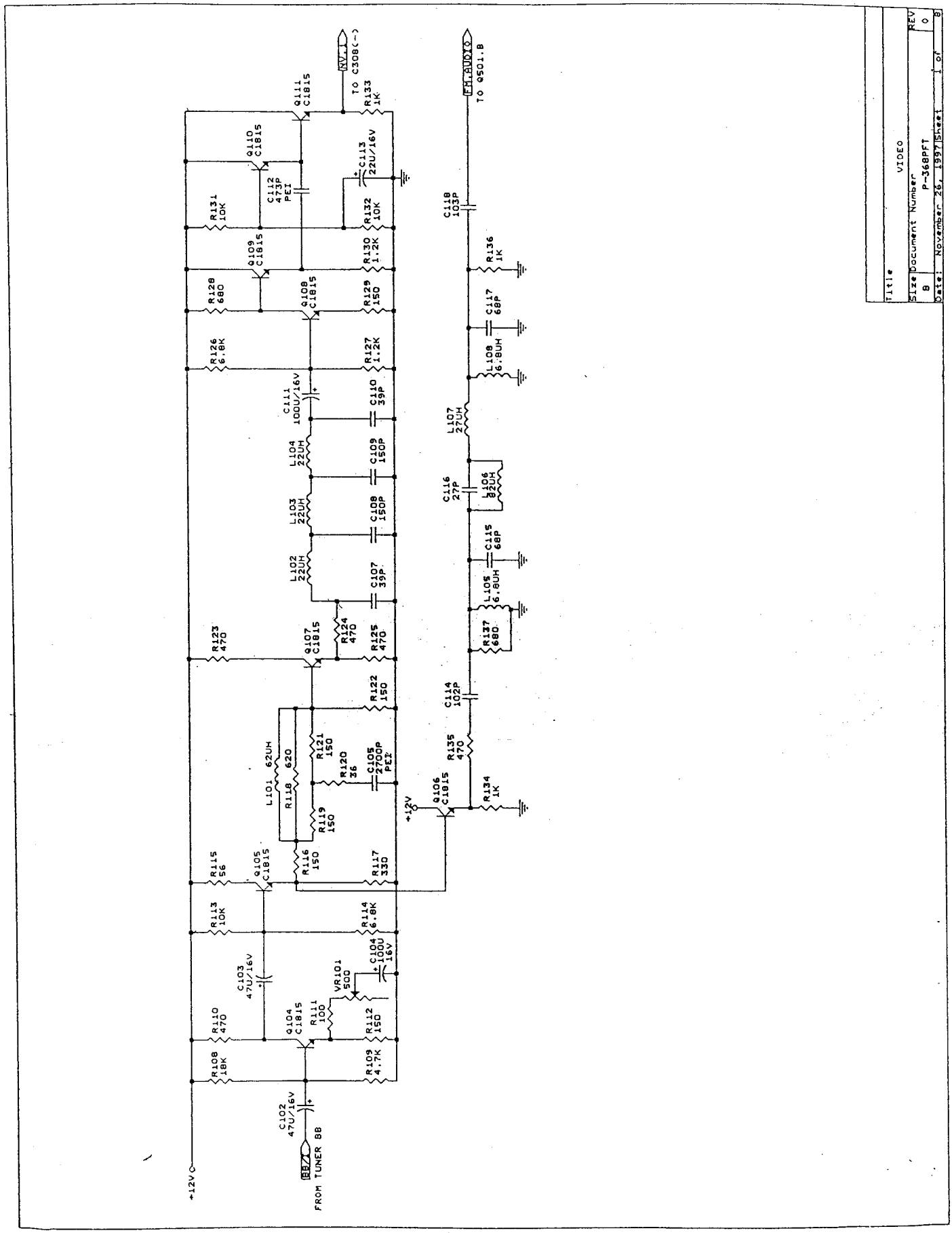
Remote Control Handset

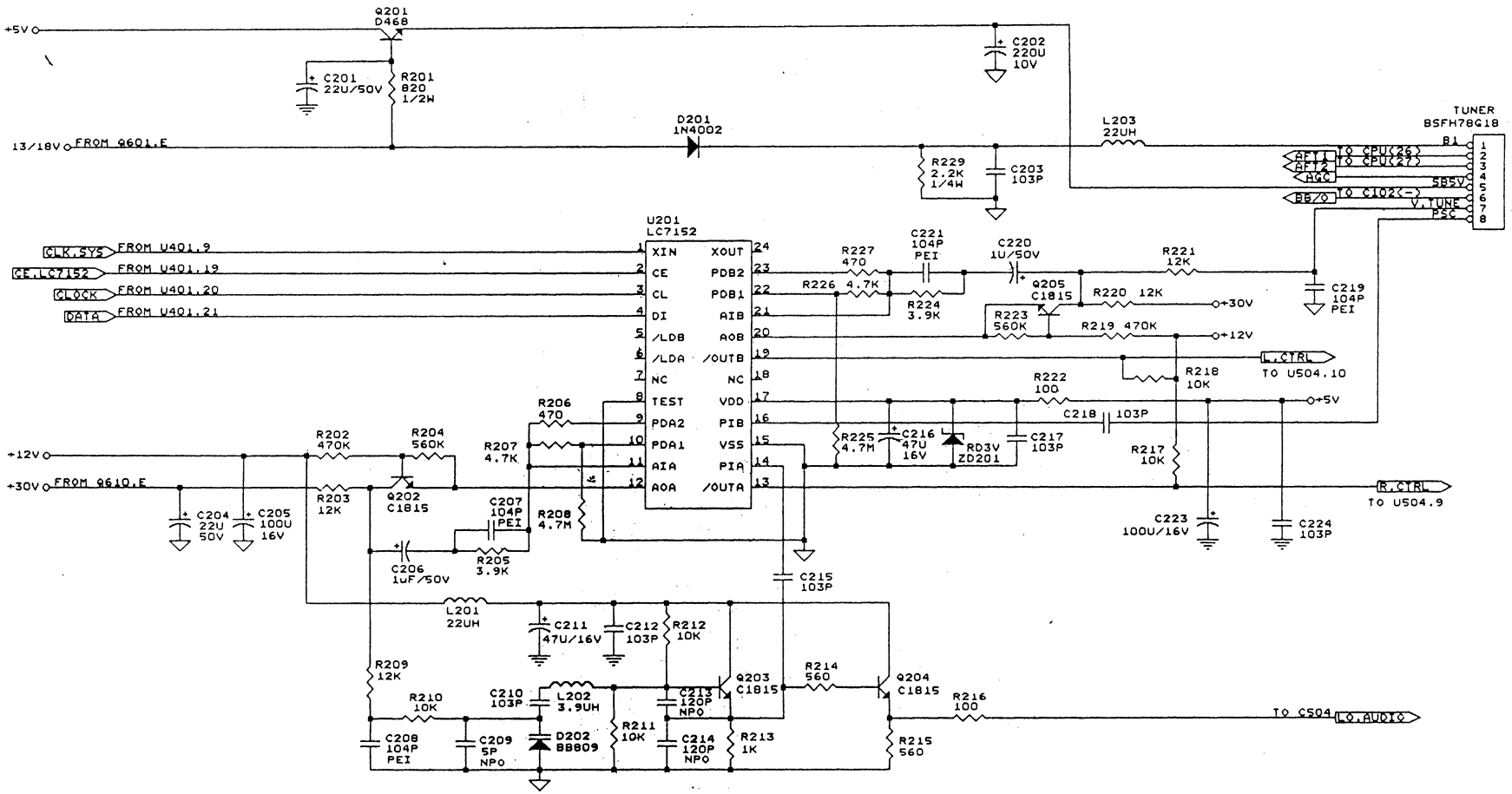
Model	: 1
Control Range	: Up to 6 metres(20 feet)
Keys	: 30Keys.
Power Supply	: Two 1.5V AAA(UM-4) batteries
Model	: 2
Control Range	: Up to 6 metres(20 feet)
Keys	: 30Keys.
Power Supply	: Two 1.5V AA(UM-3) batteries

RF Modulator

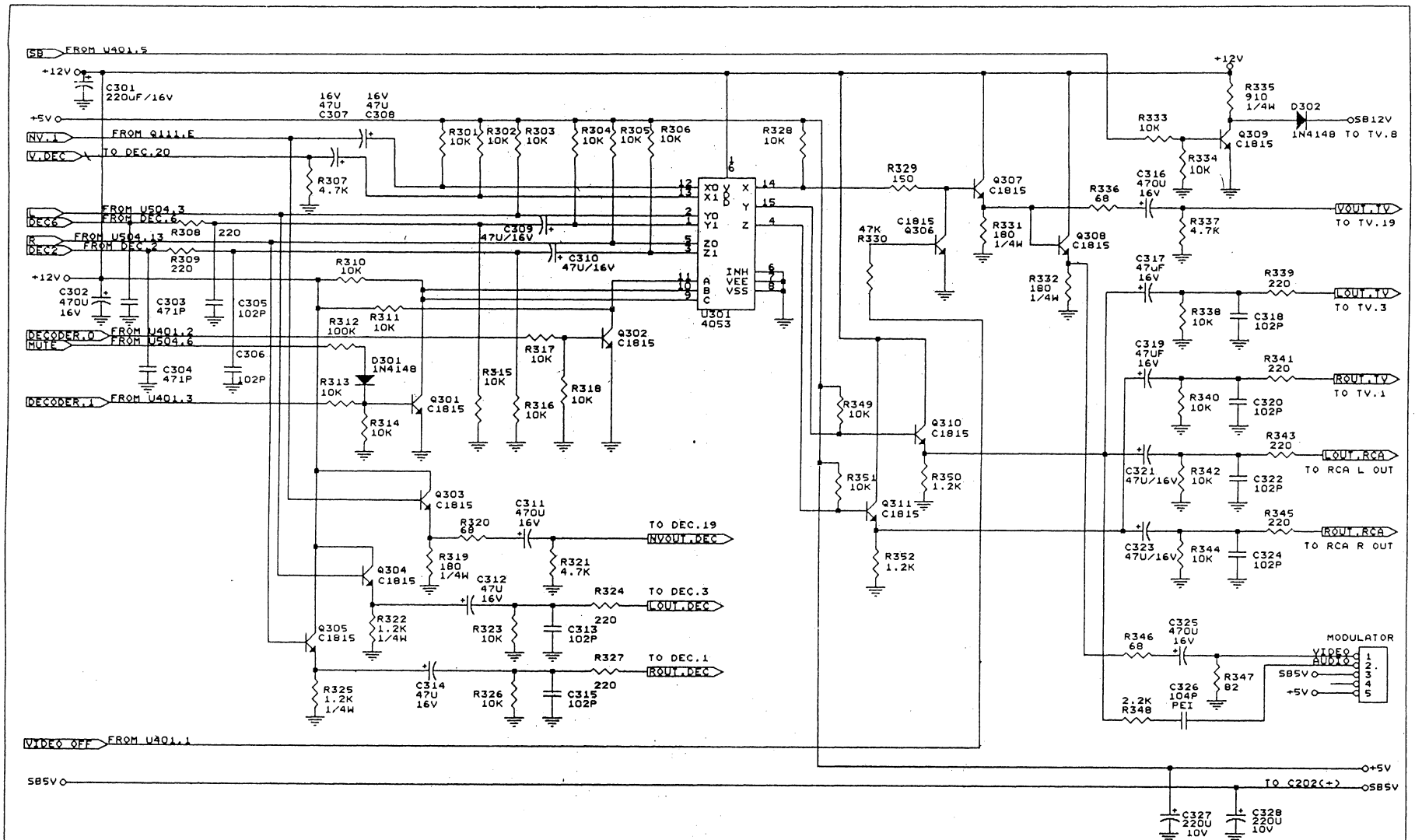
Format	: PAL G
Output Channel	: Channel 30 to 45 (preset at channel 36) for UHF
Output Level	: 74 +/- 4dB uV

2. Schematics





Title	PLL VCO & TUNER I/F	
Size B	Document Number P-368PFT	REV 0
Date: November 26, 1997	Sheet 2 of 8	



Title	OUTPUT SELECTION	
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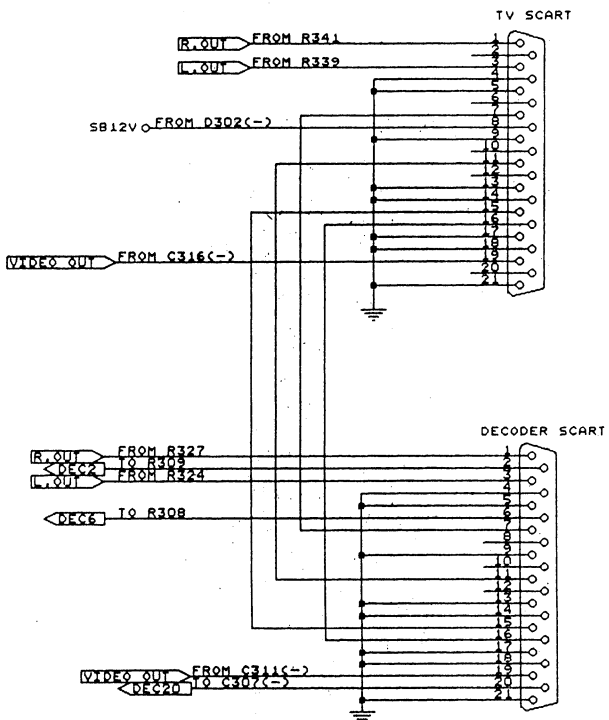
Date: November 26, 1997	Sheet 3 of 8	



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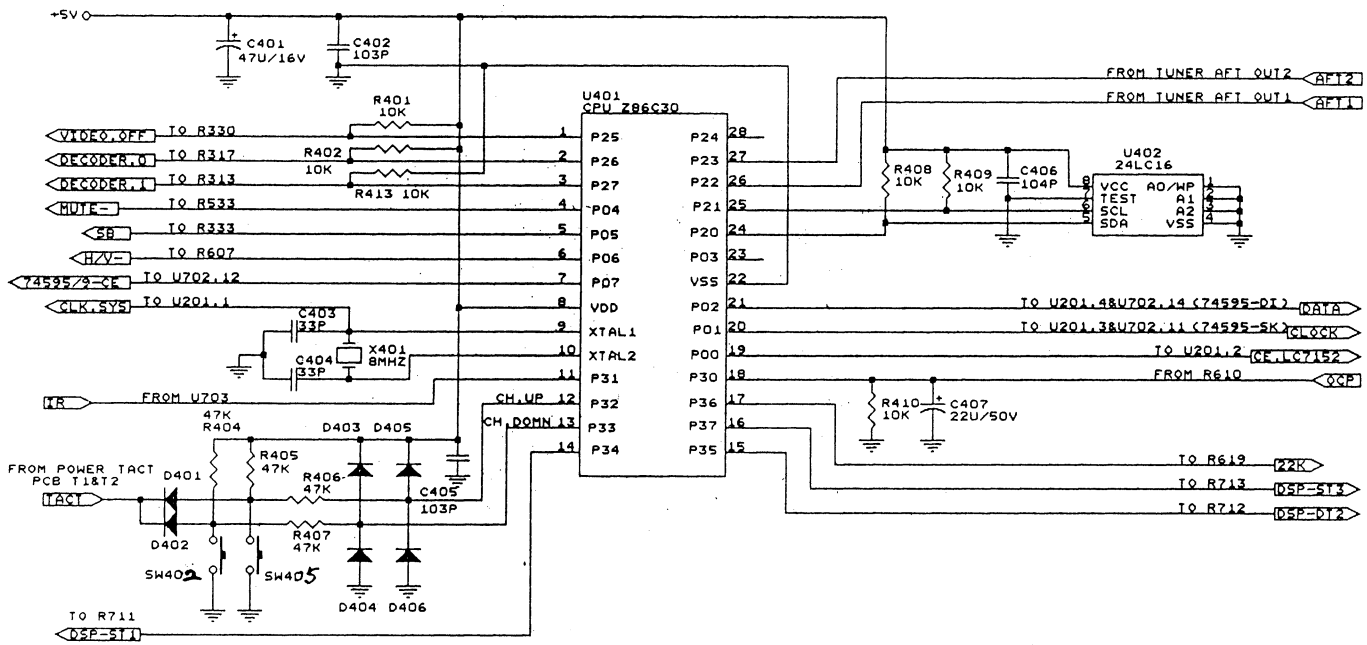
Date: November 26, 1997	Sheet 4 of 8	



NOTE:

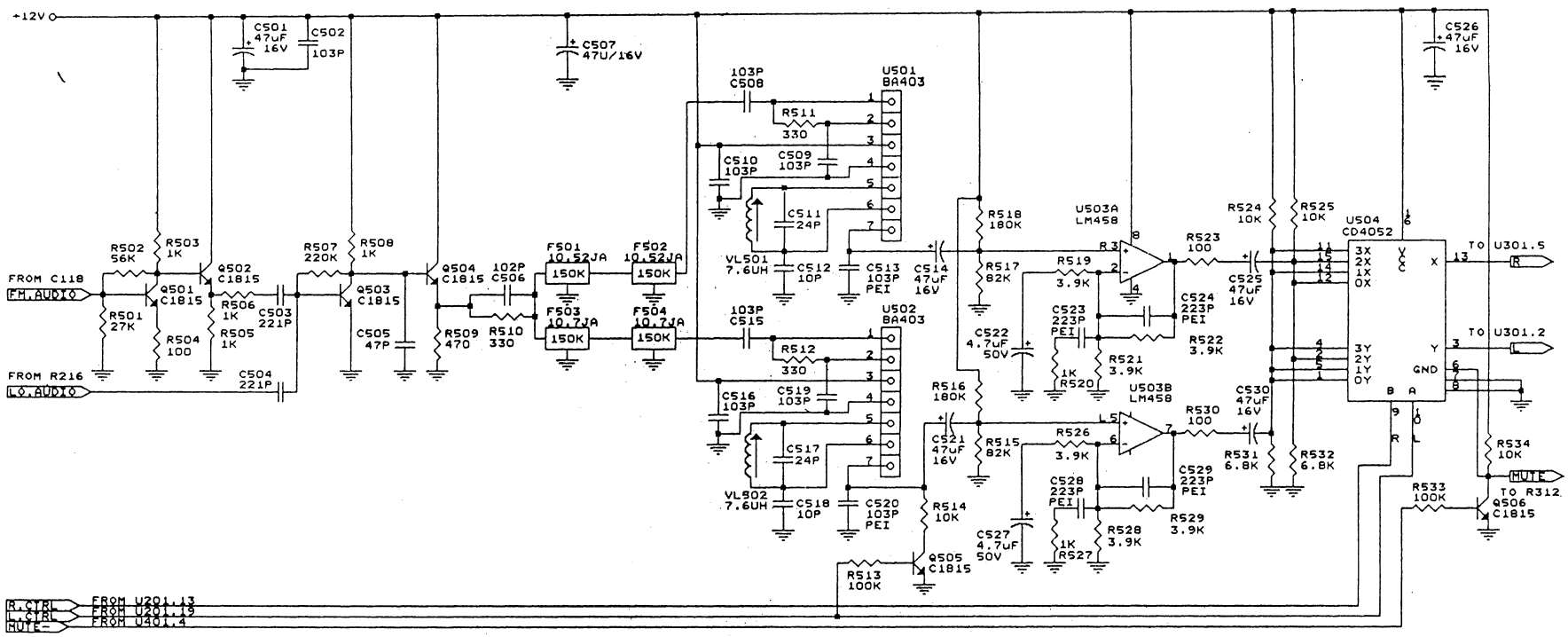
1: CPU PIN1: 0 FOR POWER SW
1 FOR TACT SW

2: CPU PIN2: 0 FOR 265 CHANNELS (U402(24LC08))
1 FOR 550 CHANNELS (U402(24LC16))

3: CPU PIN3: 0 FOR 265 OR 550 CHANNELS (U402(24LC16))
1 FOR 990 CHANNELS (U402(24LC32))

4: D401-D406=1N4148

Title: CPU		
Size: B	Document Number: P-368PFT	REV: 0
Date: November 26, 1997	Sheet 5 of 8	



Title	AUDIO	
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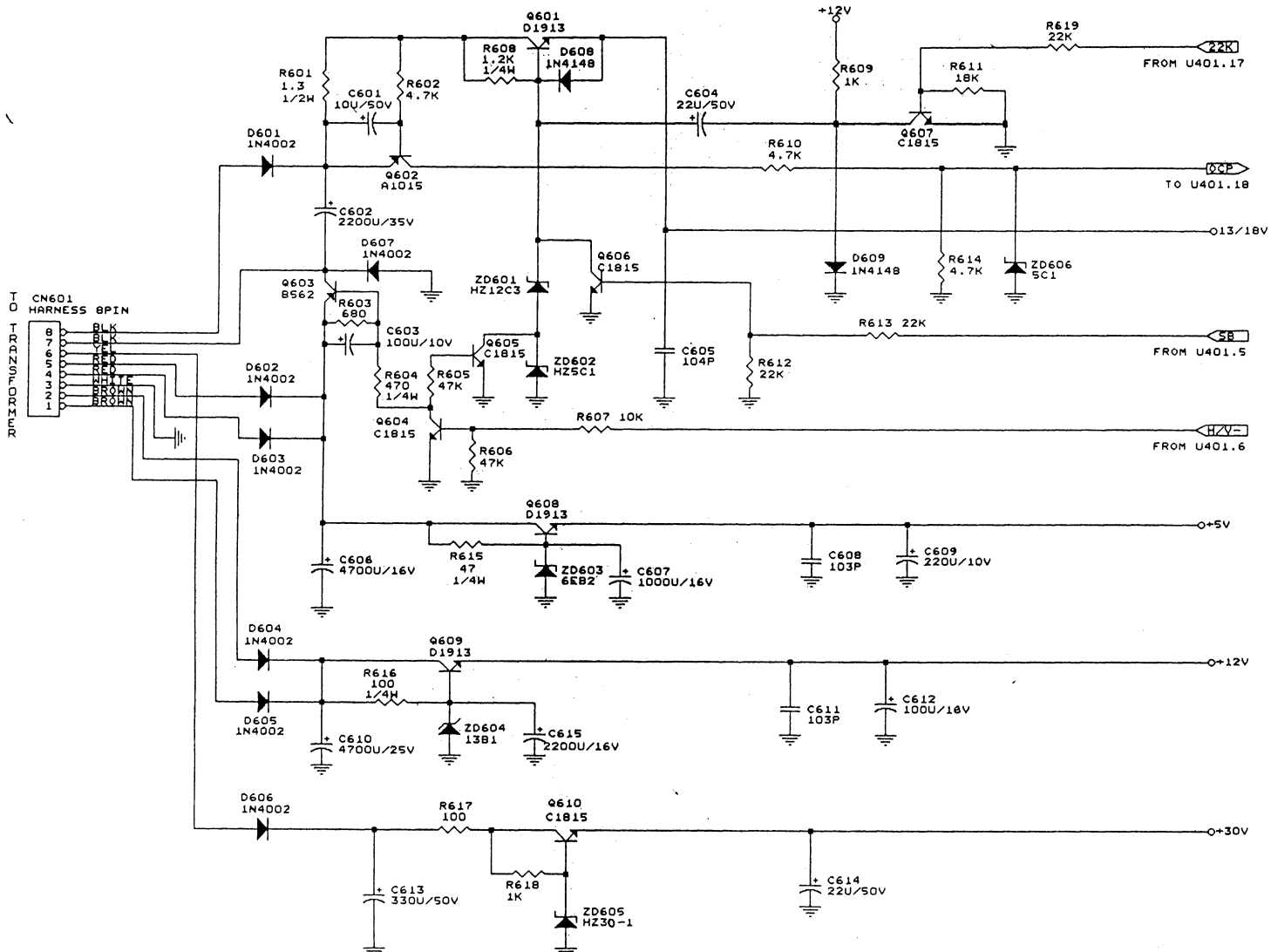

Title	TRANSFORMER POWER	
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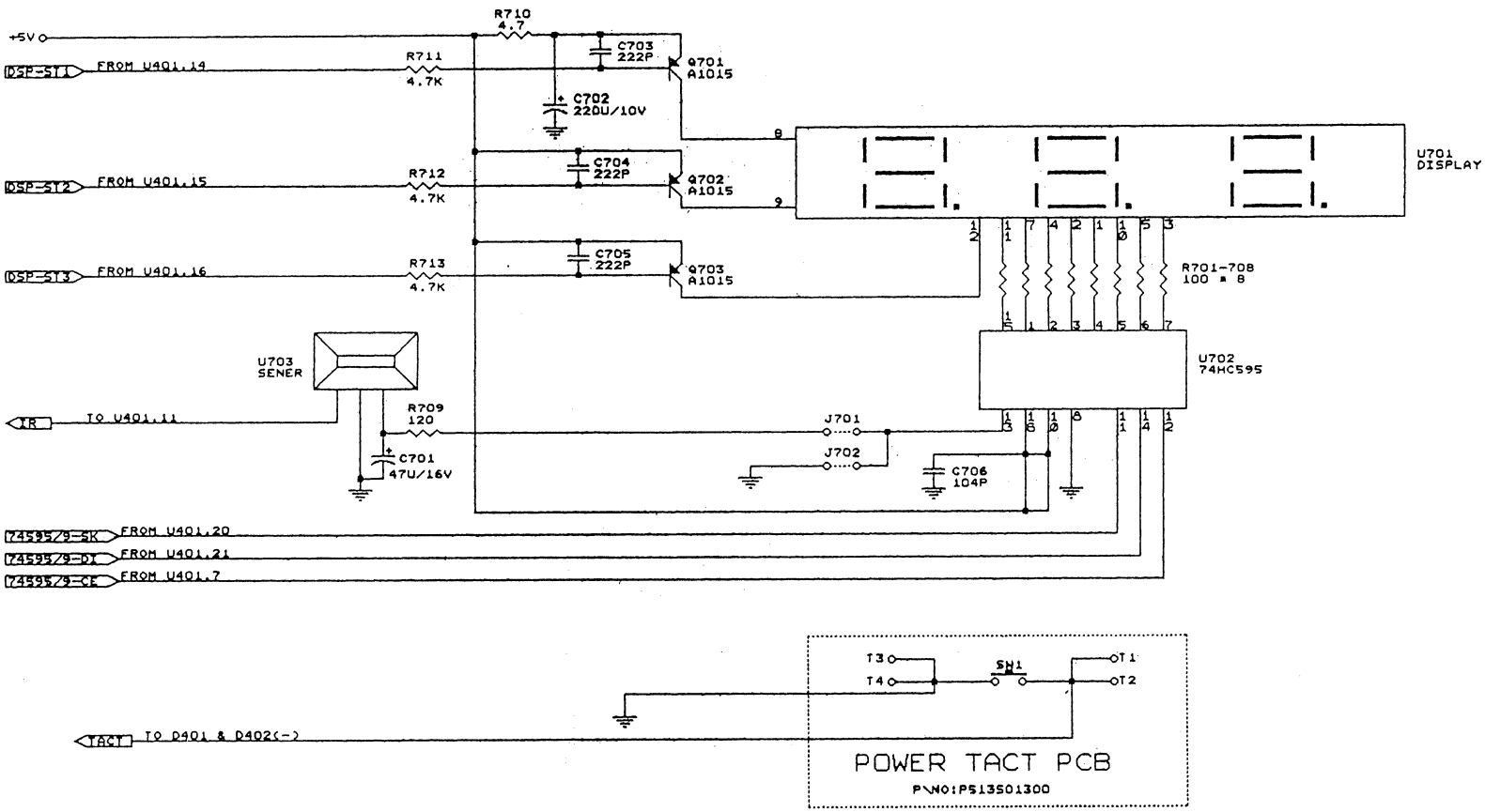

NOTE:

1:J701 FOR 74HC595

2:J702 FOR 74HC599

Title: FRONT PANEL		
Size: B	Document Number: P-368PFT	REV: 0
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3. Electrical Key Component List

3.1 Front panel board

IC:	
74HC595N	U702
LED:	
CST-532ELP-21	U701
IR:	
PIC-12043TM	U703
Transistor:	
2SA1015GR	Q701-703

3.2 Main Board

Transistor:	
2SA1015GR	Q602
2SB562-C	Q603
2SC1815GR	Q105-111, 202-205,301-311,501-506,604-607,610
2SC1815GR TOSHIBA	Q104
2SD468C	Q201
2SD1913/2SD2061	Q.601,608,609
IC:	
CPU Z86C30	U401
EEPROM 24LC16B/P	U402
LC7152	U201
BA403	U501,502
CD4052	U504
4053	U301
4558P	U503
Tuner:	
BSFH78G18	TUN1
Crystal:	
8MHz	X401
Filter:	
SFE 10.7MJA	F503,504
SFE 10.52MJ-A	F501,502
IFT:	
7.6μH	VL501,502
VR	
SVR	VR101
Diode:	
RD3.0E	ZD201
IN4148	D301,302,401-406,608,609
IN4002	D201,601,602,603,604,605,606,607
BB809	D202
HZ12C3	ZD601
13V EB1	ZD604
HZ30-3	ZD605
HZ5C1	ZD602,606
HZ6B2	ZD603
TACT Switch:	
SKHHLU1710 BLK 5.85MM	SW40 ,40

Modulator:

PAL G/SAMSUNG RMUP23655FL

Inductor:

22μH	L102-104,201
27μH	L107
62μH	L101
6.8μH	L105,108
3.9μH	L202
82μH	L106
CHOKE COIL 22UH	L203

Transformer:

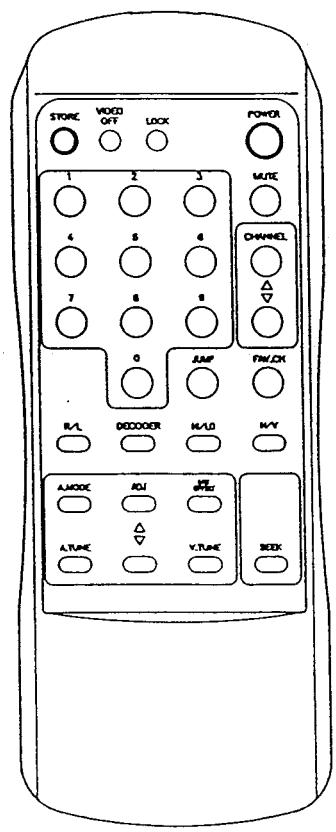
EI-48x40 8P

3.3 POWER TACT PCB

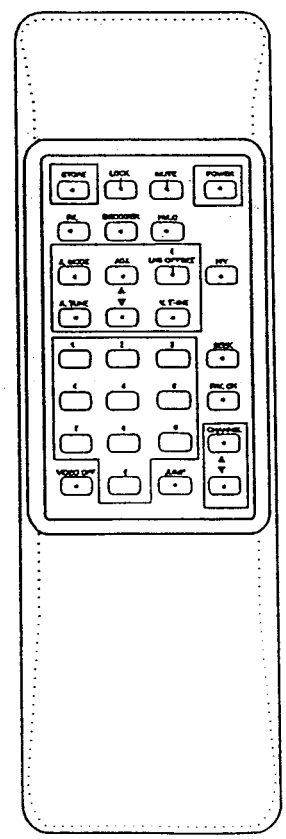
TACT SW 50mA/12V	SW1

3.4 HAND SET

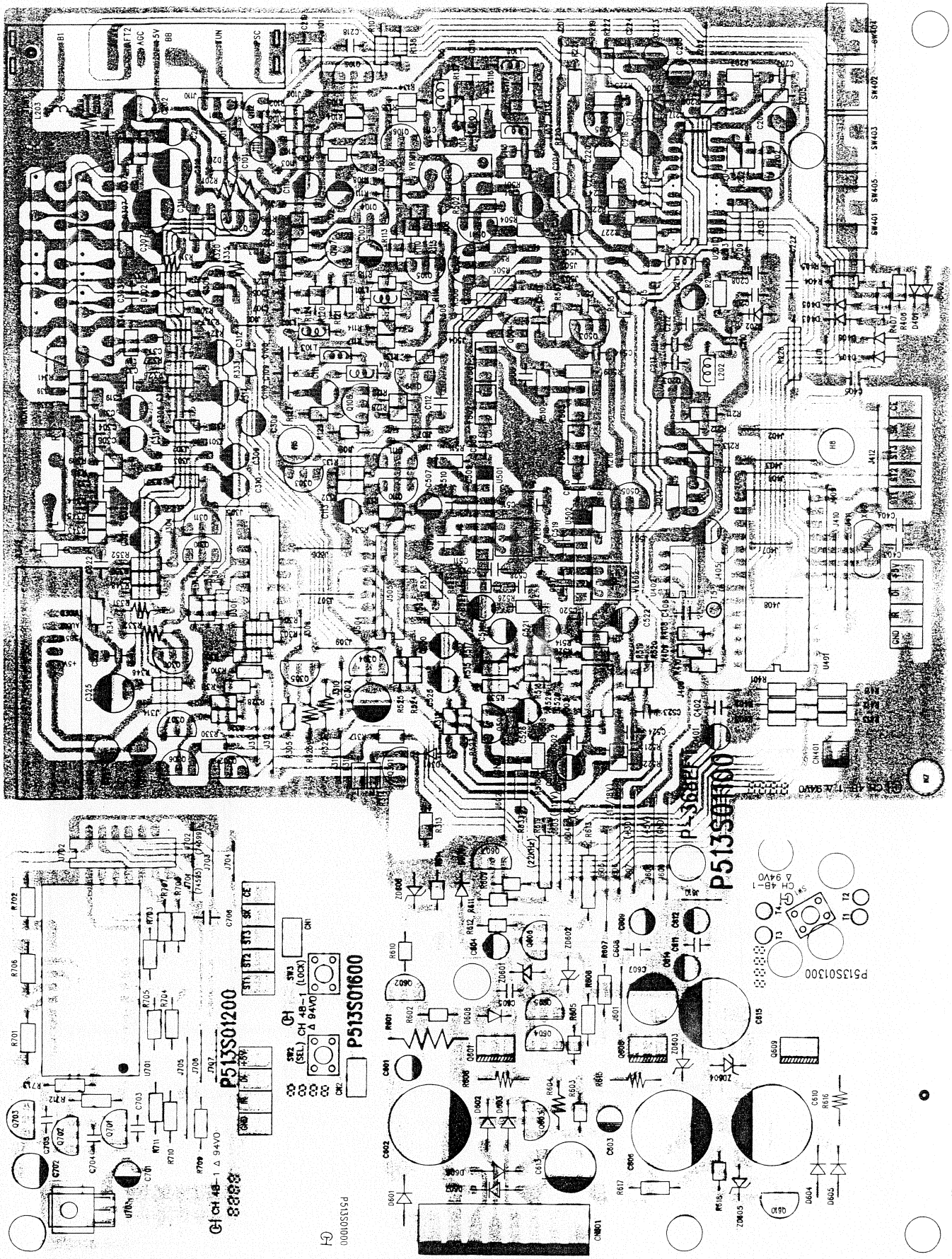
Model: 1



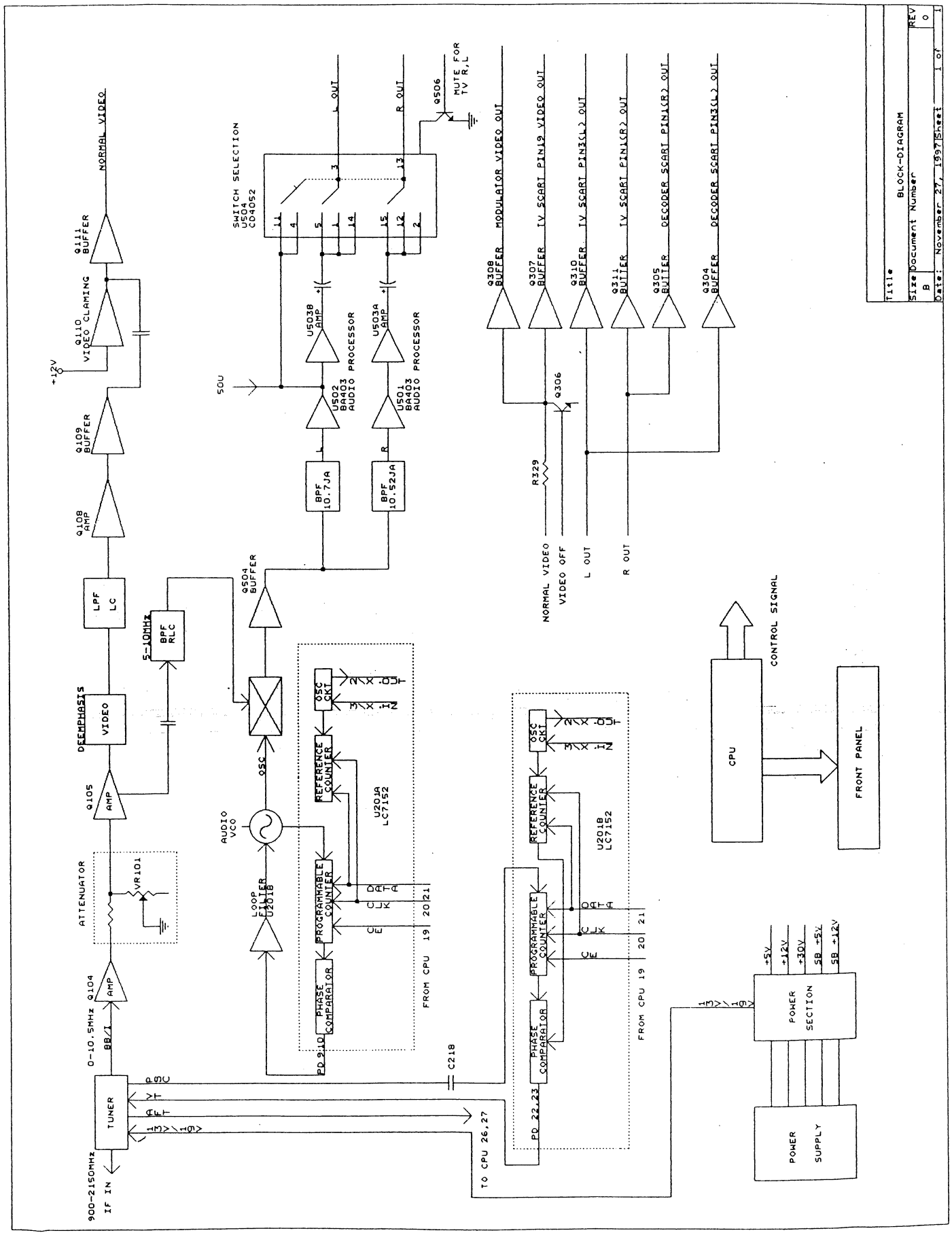
Model: 2



4. PCB Layout



7. Block diagram



8. Circuit Description

8.1 Power Protection and

8.1.1 Over current Protection

When the LNB load larger than the 450mA, U401 pin 18 will send a signal high to set Q602 into cut in mode. At the same time, it turns Q602 on, Q601 on, Q606 on, and Q605 off sequentially. Then the 5V-T and SB+5V are cut off. After the stand-by 5V is off, Q601 will be on, and Q602 off. Finally, Q602 is off and cut the current for LNB.

8.2 Video Section

8.2.1 PLL Video

U201(LC7152) works as PLL frequency synthesizer to lock the local frequency of tuner.

8.2.1 Video

The baseband from tuner pin 12 is sent to video board BB/I pin. At the first stage, The baseband is amplified by Q104. R110, R111, C103, C104 constitute the de-emphasis circuit. R123, L102-4, C108-111 work as a 5MHz low pass filter Q107 amplifies the video signal again. C112 and Q110 clamp the video signal to remove the triangle signal of the video signal. Then the normal video signal is sented to N.V.

8.3 Audio Section

8.3.1 Local Oscillator

U201 is a PLL IC. It compares the frequency of VCO from pin14 with the reference frequency. The reference frequency is set by the CPU. Pin 2 is the output pin which send out the control signal. It's peripherial circuit work as the loop filter. This loop filter provides the tuning voltage for the VCO.

8.3.2 VCO

VCO means the voltage controlled oscillator. It's oscillation frequency is propotional to the tuning voltage. D206 is a varactor diode. The junction capacitance of D206 is reciprocal to the increasing tuning voltage. By tuning the voltage of D206, the desired oscillation frequency of VCO can be obtained. The oscillation frequency of VCO = Desired sound frequency+10.7MHz.

8.3.3 Audio CKT

These IF signals pass through filters with different frequency and bandwidth. For stereo sound, the bandwidth of the filters is 150k. The frequency of the right-hand channel = 10.52 MHz. The frequency of the left-hand channel = 10.70 MHz. IC BA403 demodulates the IF signal and de-emphasizes the audio. The audio output selection is controlled by CPU. The table is as follows:

U705		U201	
PIN 9	PIN 10	PIN 13	Output
L	L	L	R/L
L	H	L	L
H	L	H	R
H	H	H	50μ